

## ANNEX IV

### SPECIFICATIONS FOR BOTTOM-LOADING, VAPOUR COLLECTION AND OVERFILL PROTECTION OF EUROPEAN ROAD TANKERS

#### 1. Couplings

- 1.1. The liquid coupler on the loading arm must be a female coupler which must mate with a 4-inch API (101,6 mm) male adapter located on the vehicle as defined by:

— API Recommended Practice 1004

Seventh Edition, November 1988.

Bottom loading and vapour recovery for MC-306 tank motor vehicles (Section 2.1.1.1 — Type of adapter used for bottom loading)

- 1.2. The vapour-collection coupler on the loading-gantry vapour-collection hose must be a cam-and-groove female coupler which must mate with a 4-inch (101,6 mm) cam-and-groove male adapter located on the vehicle as defined by:

— API Recommended Practice 1004

Seventh Edition November 1988.

Bottom loading and vapour recovery for MC-306 tank motor vehicles (Section 4.1.1.2 — Vapour-recovery adapter)

#### 2. Loading conditions

- 2.1. The normal liquid-loading rate must be 2 300 litres per minute (maximum 2 500 litres per minute) per loading arm.

- 2.2. When the terminal is operating at peak demand, its loading gantry vapour collection system, including the vapour-recovery unit, is allowed to generate a maximum counterpressure of 55 millibar on the vehicle side of the vapour-collection adapter.

- 2.3. All approved bottom-loading vehicles will carry an identification plate which specified the maximum permitted number of loading arms which may be operated simultaneously whilst ensuring that no vapours are released via the compartment P and V valves, when the maximum plant back pressure is 55 millibar as specified in 2.2.

#### 3. Connection of vehicle earth/overflow detection

The loading gantry must be equipped with an overflow-detection control unit which, when connected to the vehicle, must provide a fail-safe permission signal to enable loading, providing no compartment-overflow sensors detect a high level.

- 3.1. The vehicle must be connected to the control unit on the gantry via a 10-pin industry-standard electrical connector. The male connector must be mounted on the vehicle and the female connector must be attached to a flying lead connected to the gantry-mounted control unit.

- 3.2. The high-level detectors on the vehicle must be either 2-wire thermistor sensors, 2-wire optical sensors, 5-wire optical sensors or a compatible equivalent, provided the system is fail-safe. (NB: thermistors must have a negative temperature coefficient.)

- 3.3. The gantry control unit must be suitable for both 2-wire and 5-wire vehicle systems.

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*Status: EU Directives are being published on this site to aid cross referencing from UK legislation. After IP completion day (31 December 2020 11pm) no further amendments will be applied to this version.*

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- 3.4. The vehicle must be bonded to the gantry via the common return wire of the overfill sensors, which must be connected to pin 10 on the male connector via the vehicle chassis. Pin 10 on the female connector must be connected to the control-unit enclosure which must be connected to the gantry earth.
- 3.5. All approved bottom-loading vehicles must carry an identification plate (see 2.3) which specifies the type of overfill-detection sensors installed (i. e. 2-wire or 5-wire).
4. Location of the connections
  - 4.1. The design of the liquid-loading and vapour collection facilities on the loading gantry must be based on the following vehicle-connection envelope.
    - 4.1.1. The height of the centre line of the liquid adapters must be: maximum 1,4 metres (unladen); minimum 0,5 metre (laden), the preferred height being 0,7 to 1,0 metres).
    - 4.1.2. The horizontal spacing of the adapters must be not less than 0,25 metres (preferred minimum spacing is 0,3 metres).
    - 4.1.3. All liquid adapters must be located within an envelope not exceeding 2,5 metres in length.
    - 4.1.4. The vapour-collection adapter should be located preferably to the right of the liquid adapters and at a height not exceeding 1,5 metres (unladen) and not less than 0,5 metres (laden).
  - 4.2. The earth/overfill connector must be located to the right of the liquid and vapour-collection adapters and at a height not exceeding 1,5 metres (unladen) and not less than 0,5 metre (laden).
  - 4.3. The above connections must be located on one side of the vehicle only.
5. Safety interlocks
  - 5.1. Earth/Overfill detection

Loading must not be permitted unless a permissive signal is provided by the combined earth/overfill control unit.

In the event of an overfill condition or a loss of vehicle earth, the control unit on the gantry must close the gantry-loading control valve.

- 5.2. Vapour-collection detection

Loading must not be permitted unless the vapour-collection hose has been connected to the vehicle and there is a free passage for the displaced vapours to flow from the vehicle into the plant vapour-collection system.